

**ECTROMELIA AND PEROMELIA IN GOATS IN SAUDI ARABIA**

R.O. Ramadan, A.A.Gameel<sup>1</sup>, G.E.E. Mohamed, M.H. Al-Hammadi and M. Al-Kalifa<sup>2</sup>  
*Department of Clinical Studies, <sup>1</sup>Department of Pathology, College of Veterinary Medicine and Animal Resources, King Faisal University, P.O. Box 1757, Al-Ahsa 31982, <sup>2</sup>Al-Marai Company Ltd., P.O. Box 8524, Riyadh 11492, Saudi Arabia*

Congenital appendicular malformations have been infrequently reported in goats, including monobrachia (Elhariri and Shawki, 1980; Hamori, 1983; Gupta and Iyer, 1984), monopodia (Onawunmi *et al.*, 1979), perodactylia (Deniz and Eker, 1967), tibial agenesis (Giddings, 1976) and radial agencies (Ramadan, 1994). Periodic reporting of such defects would accumulate useful information on their incidence, animal species and breed predisposition and cast light on their pathogenesis.

**MATERIALS AND METHODS**

Four kids were presented to the Veterinary Teaching Hospital, King Faisal University for Evaluation of structural abnormalities detected at birth (Table 1). Delivery was normal and all kids were clinically sound.

Lateral and ventrodorsal radiographs were obtained from two animals (case 1 and 3) under sedation with xylazine (2% Rompun, Bayer; I/V 0.11 mg/kg b.wt).

Table 1: Animal sex, age and the presenting defect

No.	Sex	Age (days)	Complaint: Absence of	Diagnosis
1	M	35	right hind limb	Ectromelia
2	M	30	right hind limb	Ectromelia
3	M	21	right fore-limb	Ectromelia
4	F	60	left metatarsus	Peromelia

**CLINICAL FEATURES AND RESULTS**

The clinical features in the two animals which were born without the right hind limb, were identical. The right half of the pelvic bones, the femur and the whole limb distal to this bone were missing (Plate 1). The animals tried to place more support on the fore-limb and they occasionally propelled the hind limb.

The animal which had a missing fore-limb from the shoulder joint was bearing weight on three legs with emphasis on the contralateral sound limb. There was

plantigrade posture on the opposite fetlock and pastern region with stretching of the flexor tendons. During progression the animal tended to bade for a short distance then fell down. The animal which showed evidence of loss of the left metatarsus possessed a rudimentary hoof and dew claws (Plate 2, 3). It was reluctant to stand and mostly sat down with the carpal joints flexed and right hind leg extended. When walking it touched the ground with the remaining stump and this produced excoriation on its skin.

Radiographic examination was performed in two animals (Case 1 and 3, Table 1). In the former animal the pelvis was presented with the ilium, ischium and pubis of the left half only. No remnant of the right pelvic bones or any evidence of the bones forming the right hind limb was detected (Plate 4, 5). In the other animal the bones of the right fore-limb were missing starting from the glenoid cavity distally. The scapula was vestige and the glenoid cavity was rounded.

**DISCUSSION**

In the present report one case of peromelia and three cases of ectromelia, occurring as single defects, are described. Two of the ectromelia cases involved the right hind limb. This observation is in line with Nielsen and Arnbjerg (1992) who reported 14 cases of peromelia in goats and noted strong predisposition to the hind limb, particularly the right. Peromelia may vary from partial disappearance of the appendicular skeleton to near total disappearance of the bone. In ectromelia the whole segment is lost. Variations may be noted in pathological bone development of the malformed limb.

The aetiology of congenital appendicular malformations may be genetic, environmental or their interactions (Dennis and Leipoid, 1972). An autosomal recessive mode of inheritance have been suggested for peromelia in goats (Nielsen and Arnbjerg, 1992). Amputation-like effects (i.e. limb amputation) may be associated with early amniotic rupture (Rousseaux, 1988).

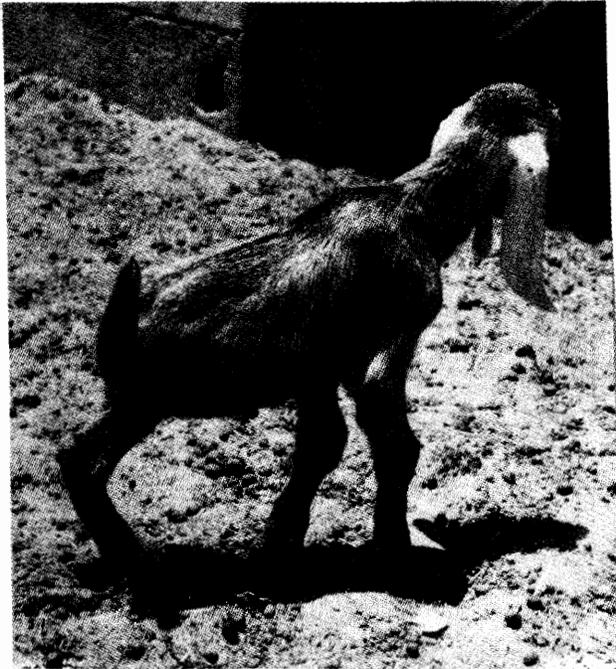


Plate 1: Animal born with 3 legs (Ectromelia).

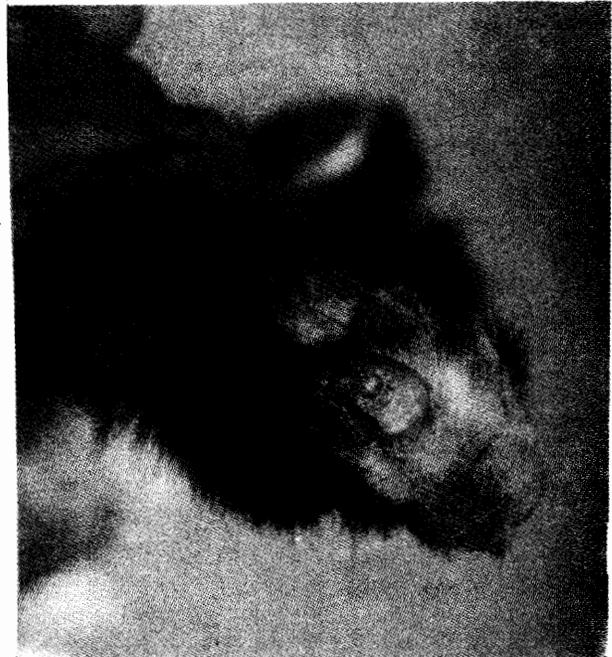


Plate 3: The distal end of the metatarsal region of the kid in Fig. 2. Note the presence of claws on the stump.



Plate 2: A kid born with a missing left metatarsus (peromelia)



Plate 4: Lateral radiograph of the kid in Fig. 1 to illustrate absence of the bones of the right hind limb including the pelvis.

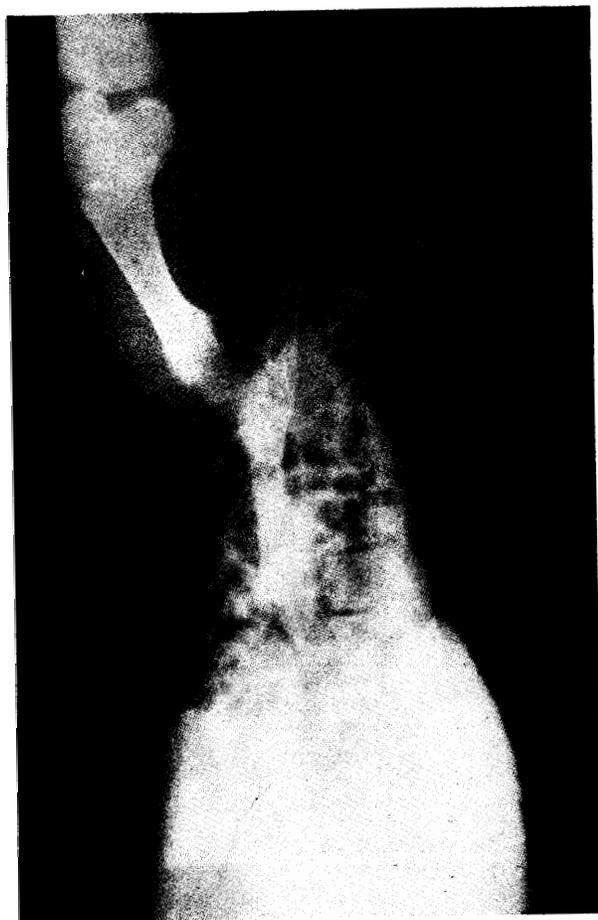


Plate 5: Ventrodorsal radiograph of the kid in Fig. 1.  
No evidence of any bony part on the right  
pelvis region.

## REFERENCES

- Deniz, E. and M. Eker, 1967. Kilis x saanen melezindeki ilginç bilateral perodactylie olayi uzerinde incelemeler. Veteriner Fakultesi Dergisi, 14: 211-225.
- Dennis, S.M. and H.W. Leipoid, 1972. Congenital dactylous malformations in sheep. Cornell Vet., 62: 322-327.
- El-Hariri, M.N.E. and S. Shawki, 1980. Amelia and hemimelia in two goats. J. Egypt Vet. Med. Assoc., 40: 89-98.
- Giddings, R.F., 1976. Tibial agensis in a Toggenburg kid. J. Am. Vet. Med. Assoc., 169: 1306-1307.
- Gupta, S.C. and P.K.R. Iyer, 1984. Congenital aplasia of a limb in a kid. Indian Vet. Med. J., 8: 129.
- Hamori, D., 1983. Constitutional disorders hereditary diseases in domestic animals. Elsevier Scientific Publication Co. Amsterdam, Oxford, New York.
- Nielsen, J.S. and J. Arnbjerg, 1992. Hereditary peromelia in Mohair goats. J. Vet. Med., 39: 142-151.
- Onawunmi, O.A., O.B. Smith and C.M. Munyabuntu, 1979. Deformed goat birth, Vet. Rec., 105: 359.
- Ramadan, R.O., 1994. A genesis of the radius in a goat. Agri-Practice, 15: 33-34.
- Rousseaux, C.G., 1988. Developmental anomalies in farm animals. 1: Theoretical considerations. Can. Vet. J., 29: 23-29.